MAGSENSE®
INSTRUCTION SHEET

CONTROL DATA CORPORATION

CONTROL SYSTEMS DIVISION
4455 MIRAMAR ROAD, LA JOLLA, CALIFORNIA

MODEL 90 THERMOCOUPLE AMPLIFIER

Part Numbers

100 μa	4-15459-10
1 ma	4-15459-20
10 ma	4-15459-30
100 ma	4-15459-40

INSTALLATION

CHASSIS MOUNTING.

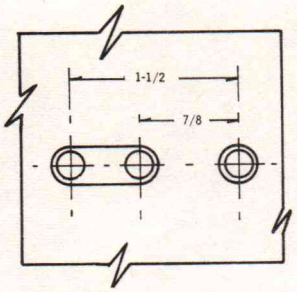
Use insulated, tapped spacers between printed circuit board and chassis. Board mounting holes will accomodate insulated spacer mounting screws within dimensions indicated on the drawing below.

QUICK DISCONNECT MOUNTING.

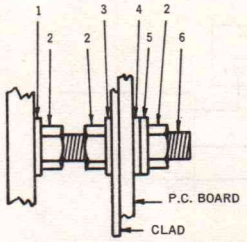
The Model 90 can be edge mounted in printed circuit board connectors such as Elco 6997–18, Cinch Jones 250–18, and Precision Connector 60–062–18. The clad runout to the edge of the circuit board from the terminal posts extends the circuitry to the connector.

MOUNT CIRCUIT BOARD ON METER

Correct polarity must be observed. Items marked NF (not furnished) are standard items furnished with the meter and used in the installation as shown.



1. STUD BOSS
2. METER NUT (NF)
3. EXTERNAT TOOTH LOCK WASHER



4. FLAT WASHER
5. SPRING LOCK WASHER
6. METER STUD 1/4-28 MAX. (NF)

NOTE

When the Model 90 printed circuit board is mounted on a meter, remove jumper on board shorting meter connections. (See circuit schematic on reverse side.)

TERMINAL HOOKUP CONNECTIONS

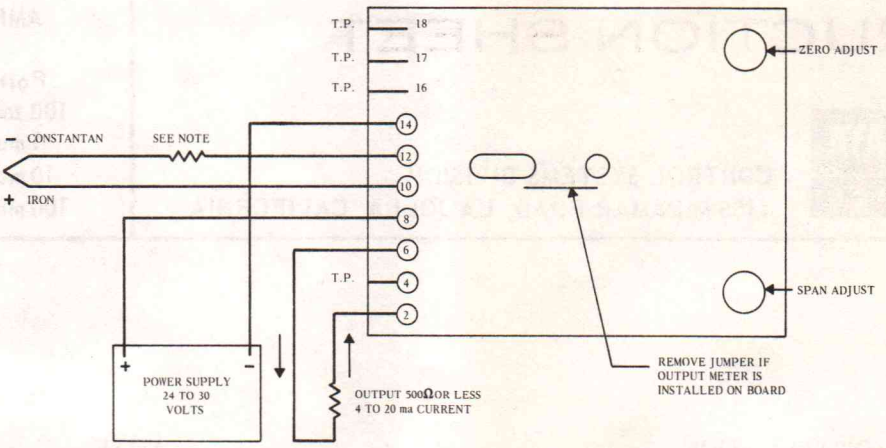
Terminal 2	Output negative
4	Test point
6	Output positive
8	Line voltage (+24 to +30 volts)
10	Thermocouple input (+)
12	Thermocouple input (–)
14	Power return, ground
16	Test point
17	Test point
18	Test point

NOTE

For thermocouples with less than 10 ohms resistance the input should be made equal to 10 ohms by adding series resistance.

CAUTION

Do not use unassigned connectors for tie points.
Do not apply load greater than 500 ohms.
Do not reverse printed circuit board in a connector.



NOTE: FOR THERMOCOUPLES WITH LESS THAN 10Ω RESISTANCE, ADD ADDITIONAL RESISTANCE TO EQUAL 10Ω.

CALIBRATION PROCEDURE

Because the amplifier has an input resistance of about 20 ohms it cannot be calibrated with the usual potentiometer millivolt source. Instead, a precision voltage divider source with accurate readout is required.

ZERO ADJUSTMENT

1. Input set at zero volts (zero millivolts)
2. Adjust Zero Adjuster on Model 90 to obtain 4 ma output

SPAN ADJUSTMENT

1. Input set at 5 volts (Lab Circuit) or 50 millivolts (Field Circuit)
2. Adjust Span Adjuster on Model 90 to obtain 20 ma output

Check zero and span adjustments and repeat as required.

SPECIFICATIONS

INPUT: IRON-CONSTANTAN OF 10 OHMS MAXIMUM

RANGE: 0 TO 25 MILLIVOLTS MINIMUM
0 TO 50 MILLIVOLTS MAXIMUM

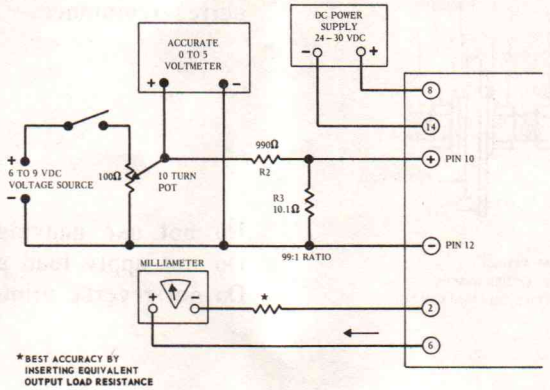
OUTPUT: 4 TO 20 MADC; RIPPLE < 1% RMS; EXTERNAL LOAD 500 OHMS OR LESS

POWER REQUIRED: +24 TO +30 VOLTS DC; NOMINAL 50 MA @ +28 VOLTS

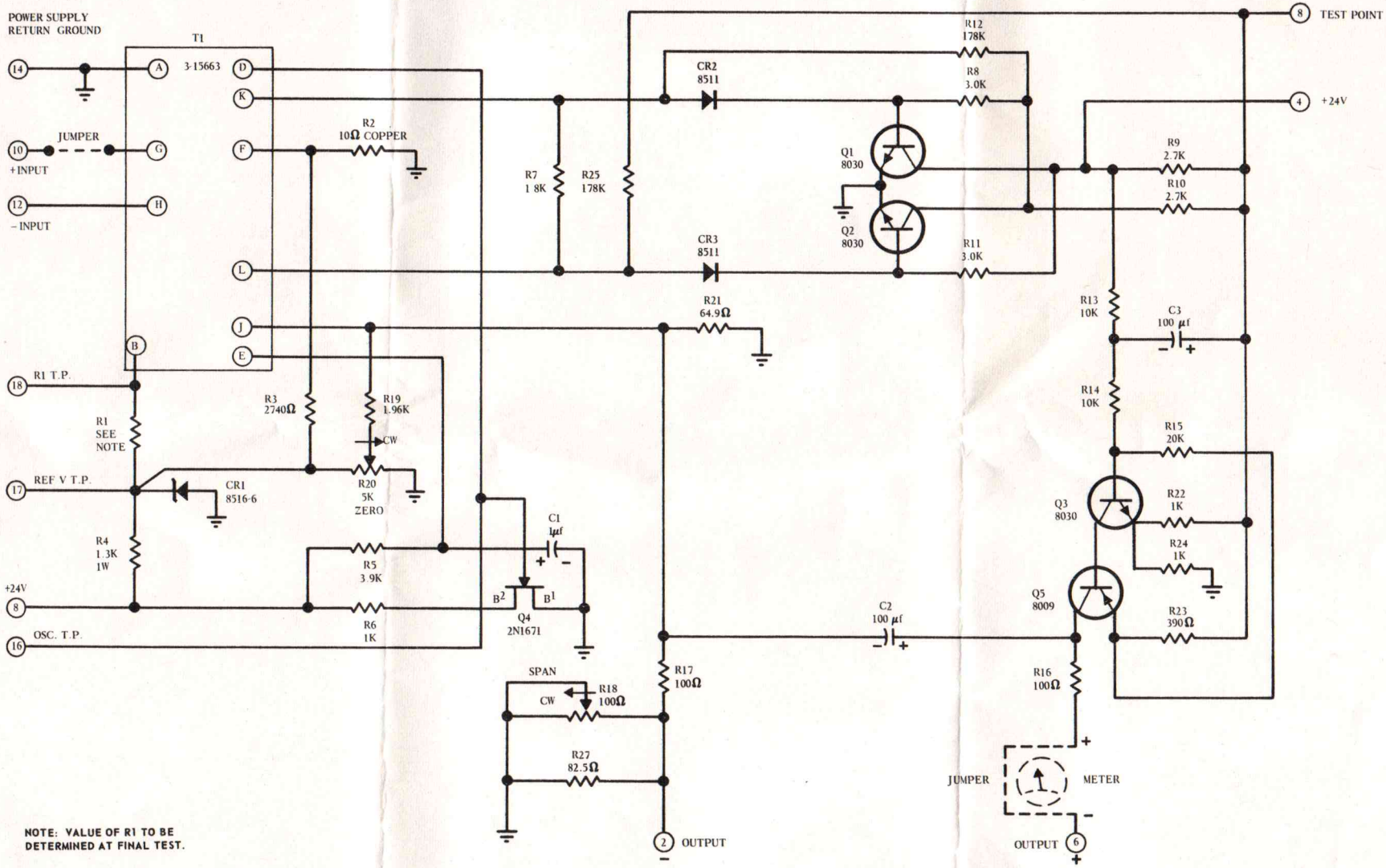
ACCURACY: CALIBRATED ±1/4% AT DESIGN AMBIENT. GUARANTEED ±1/2% AT DESIGN AMBIENT

AMBIENT: FOR ACCURACY 30° ±10°C.; OPERATING -10° TO +60°C. WITH REDUCED ACCURACY

SIZE: 3'' X 5'' X 1-1/4''



*BEST ACCURACY BY INSERTING EQUIVALENT OUTPUT LOAD RESISTANCE



NOTE: VALUE OF R1 TO BE DETERMINED AT FINAL TEST.